much during the day, swallowing nothing but ice, iced beef-tea, and the perchloride of iron.

26th. Remained undisturbed until 3 A. M., when he was seized with violent epigastric pain, fainted, and died in a few minutes.

At the post-mortem examination the stomach and intestines were found full of blood. The sole lesion discoverable was a small deep ulcer, of the diameter of a split pea, clean-punched out of the otherwise healthy mucous membrane of the duodenum. At the bottom of the ulcer was a small perforation in the pancreatico-duodenal artery. The other abdominal organs were healthy. The chest could not be examined.

This case illustrates well the occasional extreme difficulty of diagnosing duodenal ulcer. Chronic complaints of pain at the pit of his stomach, with scarce any tenderness, along with ability to take food and maintenance of his bodily nutrition and appearance of health, had gained for this unfortunate man the reputation of a confirmed hypochondriac, and at one time of a malingerer. But duodenal ulcer may run a fatal course with even greater latency of symptoms than occurred in this case. In the *Transactions of the Pathological Society*, vol. ix., the late Dr. Murchison records a case of a finely developed man who died suddenly of peritonitis from a perforated ulcer of the duodenum, and who up to the time of his fatal attack had enjoyed excellent health, and never suffered from vomiting or any pain whatever after food or at other times.—*Lancet*, May 13, 1882.

Localization of Intestinal Catarrh.

Inflammation of the mucous membrane of the bowel—intestinal catarrh, as it is now customary to term it, irrespective of its cause—may be of very limited distribution. It is true that this statement has been contested by some authorities, notably by WOODWARD, on the ground that specimens of such localized affection are rarely to be found in pathological collections. But inflammation of less severity is naturally of less extent than that which brings its subject to the post-mortem table, and the frequent clinical evidence of localized enteritis is fully confirmed by the systematic examination of the bowel in cases in which the intestinal affection merely complicates other diseases. Our knowledge of the variations in symptoms which attend these changes in locality is, however, still vague and scanty. By the occurrence of jaundice we recognize that the duodenum suffers; tenesmus points to the rectum; while by the position of pain and tenderness we may often guess with more or less accuracy at the part of the intestine which is chiefly diseased, but we know little or nothing of the influence of locality on other symptoms which attend inflammation of the bowel. To supply facts to bridge over this lacuna in medical science has been the object of some observations, continued with characteristic industry for a considerable time, by Professor NOTHNAGEL, of Jena, in which symptoms and pathological appearances were most carefully compared, and the extent of which may be judged from the fact that a microscopical examination was made of more than one thousand evacuations. The results have been published in the *Zeitschrift für Klin. Medicin.*

The first question which he has studied is the indication to be drawn from the character of the stools. The significance of the passage of pure mucus, as indicative of an affection of the sigmoid flexure, is well established. Scybala imbedded in mucus may, it is currently said, be due to an affection of any part of the colon, but Nothnagel asserts that this condition of stool is only met with when this disease is below the splenic flexure, and it is certainly indicative of a catarrhal condition. The same conclusion cannot, however, be drawn from the passage of large well-formed stools surrounded by a layer of mucus. The latter indicates a condition in which catarrh may easily arise, but not an actual inflammation. The absence of mucus does not exclude the absence of catarrh of the lowest part of the bowel, as several well-authenticated cases show. Mucus may, moreover, be passed in abundance, when ordinary examination of stools does not suggest its presence. In this state the stools are soft (not liquid) and apparently uniform, but a thin layer, between plates of glass, presents, under the microscope, numerous clear islets of pure mucus. This condition is of considerable importance in regard to localization, and indicates catarrh of the small intestine, with or without implication of the ascending portion of the colon. With such evacuations the lower half of the colon is always healthy. If the latter is affected, the mucus is found not only in the substance of the feces, but also on their surface. In some cases of catarrh of the whole of the large intestine, the stools are of a pulpy, almost fluid consistence, and contain small globules of mucus, but these are so large as to be visible to the naked eye. The microscopic globules come only from the small intestines. On the other hand, the former cases are distinguished from catarrh limited to the lowest part of the colon by the intimate mixture of the mucus and fecal matter. Of course, this conclusion does not hold good for the cases of severe dysenteric inflammation of the whole colon, in which pure mucopus is evacuated, or in which, in consequence of the damage to the membrane, mucus is no longer secreted. There is yet another form in which mucus is passed which is of diagnostic significance—globules of mucus coloured yellow by bile pigment. These are never found in catarrh which is limited to the colon; the small intestine is usually, and often chiefly, involved. The appearance is not infrequent in typhoid fever.

Another constituent of the feces which is of diagnostic importance is bile pigment. It is well known that under normal conditions the contents of the bowel cease to react, in a characteristic manner, to Gmelin's test, at or about the ileocæcal valve. The play of colours no longer commences with a conspicuous green. A characteristic reaction in the feces, or at least in certain of their constituents, indicates that there is an augmented peristalsis of the colon and lower part of the ileum. Nothnagel has never been able to obtain this reaction in the general mass of a consistent stool. If unaltered bile pigment is present, the consistence of the feces is always more or less liquid. A retention in the colon sufficiently long to give firmness is always attended with a transformation of the pigment. It is rare, under any circumstances, for the reaction to be obtained from the whole of the fecal mass, except in acute infantile enteritis. Much more frequently the unaltered bile pigment is found only in portions which contain much mucus. Sometimes the same evacuation contains both clear and yellow-stained mucus, the latter giving the bile reaction and coming from the small intestine, the former from the colon. The presence of the former was invariably found, post mortem, to be associated with catarrh of the jejunum and ileum. It implies an increased peristaltic action, which must, however, involve not only the small intestine, but also the colon throughout its entire length. If the greater part of the large intestine is healthy and the stools infrequent, no unaltered bile pigment may be passed, in spite of the existence of catarrh in the lower bowel. Micro-chemical investigation often shows that not only mucus but cylindrical epithelium contains unaltered bile pigment. The diagnostic significance of this epithelium is the same as that of the bile-stained mucus. The staining of the epithelium may be proved, post mortem, to occur in the small intestine, but only after detachment from the mucous membrane, since that which is still *in situ* is always colourless. Rarely, leucocyte-like corpuscles and fat globules, stained with unchanged bile pigment, may be found in the stools, and have the same significance as the epithelium.

The presence of unaltered fragments of food in the feces constitutes another element of diagnostic significance, since their quantity indicates normal variations in different parts of the intestinal canal, being far greater in the small than in the large bowel. Fragments of muscular fibre are invariably present under normal conditions, and hence only a considerable excess can be regarded as pathological. The significance of this constituent relates only to the small intestine, for the colon has no influence on its presence. Whatever passes the ileo-cæcal valve is ejected without further change. A series of careful observations has shown that the digestion of muscular fibres is greatly hindered by pyrexia; that, in the presence of fever, an excess in the stools affords no diagnostic indication. Mere increased peristalsis, without fever or catarrh, is also capable of causing the excess; and if the motion of the contents of the intestine is not accelerated, intestinal catarrh does not increase the amount evacuated, and an excess therefore only points to such catarrh when other indications of this, such as mucus, are present at the same time. An excess of starch granules has a similar significance. Intestinal catarrh seems also to be without material influence on the amount of fat in the feces. The anatomical changes induced in the mucous membrane are absolutely without influence on the absorption of fat.

The conclusion of most previous writers, that physical examination of the abdomen furnishes but scanty indications for the localization of enteric catarrh, is confirmed by Nothnagel. An extensive series of auscultatory observations were made, the relative loudness of gurgling sounds in different parts of the abdomen being noted simultaneously by two observers, but the ready conduction of the sounds from one part of the abdomen to the other made definite localization impossible. Only when the noise was produced in the ascending or descending colon, and the small intestine contained liquid, was it inaudible on the other side. Nor does percussion teach much regarding the localization of intestinal catarrh, since the condition which usually obtains—less resonance in the central part of the abdomen than in the position of the colon—is also present in normal conditions. Even the alteration in the normal relative resonance of the two iliac fossæ, so frequent, as Traube showed, in typhoid fever, is produced by many conditions, and is of little diagnostic value. The study of the indication afforded by palpation confirms, but does not extend, the well-known significance of local tenderness and of local gurgling perceptible to the touch.

The last diagnostic point investigated by Nothnagel is the excretion of indican by the urine, which, as is well known, is increased in a remarkable manner in many affections of the gastro-intestinal canal. Unfortunately the extensive observations, including two thousand separate estimations of indican in the urine, of cases which were carefully watched, have yielded but little result. An increase was found in the majority of cases of intestinal catarrh and diarrhœa, and very often also in cases in which there was no intestinal affection at all. When the colon only was affected, however, no excess of indican was observed so long as the general condition of the patient was good. On the other hand, in all cases in which there was a decided catarrh of the small intestine, the indican was increased. So constantly was this found that Nothnagel was inclined to believe that the absence of an excess of indican gives ground for excluding catarrh of the small intestine, but his conclusion was rendered doubtful by a series of cases of exanthematic typhus, with severe intestinal catarrh, in which no indican was found in the urine. It may be doubted whether his previous conclusion is altogether invalidated by this fact; it may still hold good for the simpler forms of enteritis.

These laborious investigations, in a department of practical medicine often passed over as alike unpromising and uninviting, deserve the highest praise. They add materially to our knowledge of enteric symptomatology, and they show

how important are the facts which may be ascertained by a systematic study of the night-stool, and which has been too little regarded by the present generation of clinical observers.—*Lancet*, March 4, 1882.

Jaundice in the Newly-born.

The mysterious jaundice which so often affects newly-born children has always given rise to much interest and many hypotheses, based for the most part on fancy rather than on fact. By some authorities its cause is referred to the liver, by others to the blood. Modern theories of jaundice render the former explanation the more probable, since the opinion that the elements of the bile are preformed in the blood has been practically given up, and with it falls to the ground the theory of "jaundice by suppression." Virchow believed that icterus neonatorum was merely a variety of the common catarrhal jaundice, and arose from duodenal catarrh, while Cohnheim has assumed that the bile formation of fœtal life is small, and is so suddenly increased at birth that the bile-ducts are not at first competent to carry the secretion away. Neither of these assumptions rests on any evidence. Another group of theories ascribes the jaundice to the disturbance of the circulation in the liver which occurs at the change from intra-uterine to separate life. Hewitt and Weber believe that the distended veins compress the bile-ducts, while Frerichs has adopted an older theory of Morgagni, and suggests that the sudden diminution in the supply of blood to the organ leads to a passage of the secreted bile into the bloodvessels. The theory of Breschet, that the jaundice depends on changes in the colouring matter of the blood, and is thus hæmatogenic in nature, has been recently revived by Epstein, but it rests on considerations which are, with one exception presently to be mentioned, even more purely hypothetical, and its chief support is the feeble argument that other causes have not yet been demonstrated.

This lacuna in our knowledge of the subject is to some extent filled up by facts which **Birch-Hirschfeld**, of Dresden, has supplied in an article contained in a recent number of Virchow's *Archiv*. It is, he points out, very difficult to avoid associating the jaundice in some way with the disturbance of the hepatic circulation on the transfer of its chief blood-supply from the umbilical vein, especially when regard is had to the conspicuous congestion and œdema of the liver, well described by Weber, which occur in cases in which the circulation through the umbilical cord is interrupted before the respiratory movements, by their effect on the right heart, afford an adequate compensation. It is to the connecting link between the two phenomena that Birch-Hirschfeld's attention has been specially directed. He notes that the vessels in the hilus of the liver are surrounded by a dense layer of connective-tissue, which is continued into the organ along the branches of the portal vein, and that in cases in which there is venous obstruction in the liver, in consequence of hindered birth, this tissue is the seat of conspicuous œdema. A broad layer of gray pulpy tissue incloses the vessels, and is seen also around the umbilical vein in its diaphragmatic portion, and may also extend to the gall-bladder. The microscopical appearances of this tissue are those of œdema with a more or less abundant accumulation of round cells in the interstices of the tissue. That this swelling of the tissue must compress the bile-ducts is sufficiently obvious; and Birch-Hirschfeld has found that not only, under these circumstances, are the bile-ducts distended, but there may be a positive difficulty in squeezing the bile out of the gall-bladder into the duodenum, and in the latter there is a manifest deficiency of bile. In such cases, in which death occurs during the first day of life, commencing icterus may be distinctly detected; and the gradual increase of the jaundice in connection with this pathological con-